

PATENT SPECIFICATION

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DRAWINGS ATTACHED.

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COMPLETE SPECIFICATION.

Filing Laces and the Manufacture Thereof.

5 We, FAIRE BROS. & COMPANY LIMITED, a British Company, of Rutland Street, Leicester, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to filing laces, i.e. laces which are suitable for threading through documents for keeping them together or in files. The invention also relates to a method of making filing laces.

15 The end tags of filing laces are conventionally made of sheet metal rolled into a tube which is deformed to grip the cord or other flexible lace member.

20 According to the present invention there is provided a filing lace comprising a flexible lace member and end retaining tags each of which lies across the length of an end portion of the lace member, wherein said tags are in the form of solid bars which have been moulded onto the lace member.

25 The end retaining tags may be made from any suitable mouldable plastics material, e.g., Nylon.

30 The end retaining tags may be moulded onto the lace member so that the end portions of such member extend right through the tags. In consequence it is possible to mould such tags at any predetermined positions along a common length of lace material preparatory to severing it into a plurality of parts, each constituting a complete filing lace.

40 The end retaining tags may be given any predetermined shape in transverse or longitudinal cross-section by appropriate choice of the mould shaping. Thus, the tags, or one of them, may be moulded with a taper to facilitate threading of the lace.

The use of plastics material for the end retaining tags brings the advantage that they are not subject to corrosion.

45 Dyed plastics material can be used for the end retaining tags. The use of filing laces with differently coloured tags greatly assists filing systems. Documents laced with filing laces according to the invention can be pulped without the retaining tags causing 50 difficulties.

55 In mass-production manufacture, one or more lengths of cord or other lace material may be fed stepwise through a mould and plastics material may be injected into the mould during each dwell period. At each injection stage a quantity of plastics may be moulded at two or more positions along a common length of lace material either by passing this through two or more moulds 60 arranged side by side or by using a mould with a plurality of mould spaces along the or each passage for lace material.

65 It is very convenient to use a mould with a pair of closely spaced parallel mould spaces and to use this mould for moulding pairs of end retaining tags onto a cord at successive positions spaced apart by the length of the intended laces. The assembly can then be divided into separate laces by severing the 70 cord between the closely spaced tags.

75 For forming tags onto two or more lengths of lace material simultaneously, a mould may be formed for accommodating two or more lengths of lace material in spaced parallel relationship and with the mould space appertaining to the said lengths of lace material in communication. In those cases the 80 mouldings on the lengths of lace material will be joined together but they can easily be separated.

Certain embodiments of the invention are

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illustrated in the accompanying diagrammatic drawings which will now be referred to. In these drawings:

Fig. 1 shows part of an injection mould and a cord-feeding device;

Fig. 2 shows part of a length of cord with retaining tags moulded thereon in the mould shown in Fig. 1;

Fig. 3 shows part of another mould;

Fig. 4 shows part of an assembly of cords and moulded strips formed in the mould according to Fig. 3.

Referring to Fig. 1, this figure shows one half of a mould. Each mould half is formed with half of a lead-in channel 1, halves of a pair of communicating cylindrical passages 2 and half of a transverse cord passage through which a cord 3 can be passed by suitable feed means including pulley wheels 4 and a tensioning member 5. The illustrated mould half is fixed and the other mould half is registered and held firmly in position after locating the cord in the transverse groove in the fixed half of the mould. Plastics material is injected into the mould from a nozzle 6 which fits into the chamfered end of the lead-in channel 1. Then the displaceable mould half is temporarily separated from the fixed half and the cord is advanced over a certain distance according to the predetermined lengths of the filing laces. Then the displaceable mould half is replaced and a further pair of end tags is moulded. This sequence of operations continues until the whole of the stock length of cord has been used. The operations may be automatically controlled and the length of cord drawn through the mould at each advance may be made variable so that laces of any pre-selected lengths can be produced.

Fig. 2 shows part of a cord with moulded retaining tags, prior to being severed into separate laces. As appears from the left hand side of the figure, the tags moulded at each injection step are initially joined by a sprue 7 resulting from the lead-in channel 1, and this sprue has to be cut off leaving the tags separated as shown on the right hand side of the figure. The cord is subsequently cut between the tags of the successive pairs, i.e., at the positions indicated by the chain lines in Fig. 2.

Fig. 3 shows the two halves of a mould for moulding retaining tags simultaneously onto four cords 3. To this end the mould is formed with four cord passages 8. The interior of the mould is not shown but it is formed similarly to the mould in Fig. 1 save in that the narrow mould passages in which the retaining tags are formed extend across the four cord passages. In the result, the cords 3 leaving the mould are joined together at intervals by plastics strips 9 as shown in Fig. 4. The strips of each of the successive pairs will again be joined by a moulding

sprue but the sprues are not shown in Fig. 4. The strips are severed at the positions denoted by the horizontal chain lines in Fig. 4 to separate the four cords and each of the four cords is severed at the positions denoted by the vertical chain lines to separate such cord into a plurality of complete filing laces.

The pressure at which the plastics is injected may in suitable cases be sufficient to force the plastics material to flow into interstices of the material forming the lace member. Alternatively or in addition the lace material may be pre-treated, e.g., coated or soaked with a substance promoting bonding of the plastics material thereto.

The retaining tags may be moulded in any required colours. They may also have any required cross-sectional shape. By way of example the end retaining tags may be of circular or flat rectangular section. If desired they may be tapered lengthwise.

Various modifications to the illustrated methods can be made. For example, the mould, whether it be one for moulding end retaining tags onto only one length of lace material or onto more than one length of such material, may be formed for moulding only a single retaining tag on a length of lace material at a time, or a mould much larger than those illustrated may be used, comprising mould cavities spaced apart sufficiently for the two retaining tags of one or each lace to be formed simultaneously in the mould.

Any lace material suitable for the intended use of the laces can be used. Cord materials as conventionally used in filing laces are of course quite suitable. We would also particularly mention that elastically extensible material may be used for the lace members.

Filing laces according to the invention can be employed for purposes other than lacing documents together and the length of the lace and the length and shaping of the retaining tags may be chosen as required to suit the intended use. As a specific example, laces according to the invention, if suitably formed, can be used in the hat trade for simple adjustments. In the latter case in particular, elastic lace members are useful.

WHAT WE CLAIM IS:—

1. A filing lace comprising a flexible lace member and end retaining tags each of which lies across the length of an end portion of the lace member, wherein said tags are in the form of solid bars which have been moulded onto the lace member.
2. A filing lace according to claim 1, wherein the retaining tags are made of Nylon.
3. A filing lace according to claim 1 or 2, wherein the said retaining tags are formed of a dyed plastics material.
4. A method of making filing laces com-

- prising a flexible lace member and end retaining tags each of which lies across the length of an end portion of the lace member, which method comprises moulding end retaining tags in situ onto a length of flexible lace material at spaced positions therealong, and subsequently severing such material into a plurality of parts each constituting a filing lace.
- 5 10 15
5. A method according to claim 4, wherein said moulding of end retaining tags proceeds simultaneously with the moulding of end retaining tags onto one or more further lengths of flexible lace material, the end retaining tags on the lengths of lace material being moulded in the same mould and so that the end retaining tags of the lengths of lace material are integral, and wherein the integral retaining tags are subsequently separated.
- 20
6. A method according to claim 4 or 5, wherein the moulding of the end retaining tags is effected in a mould in relation to which the length or lengths of lace material is or are advanced step-wise.
- 25
7. A method of making filing laces, substantially as herein described with reference to the accompanying drawings.
8. Filing laces comprising a flexible lace member onto which end retaining tags have been moulded in situ by a method according to any of claims 4 to 7.
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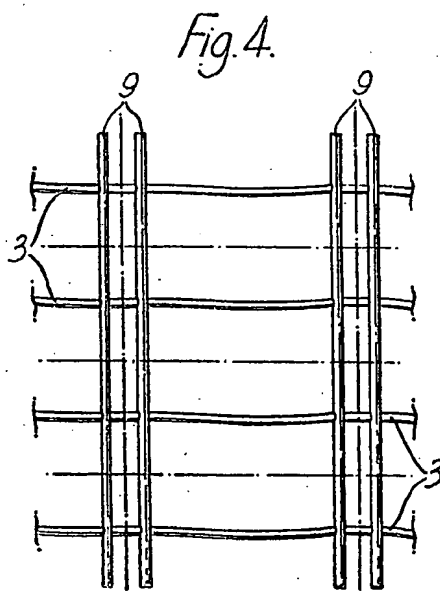
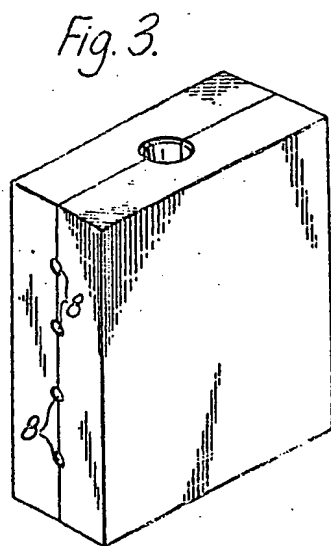
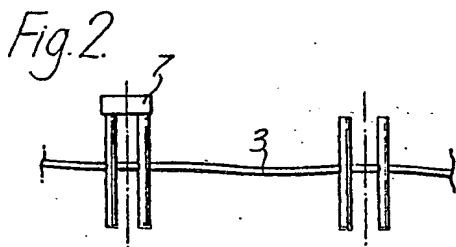
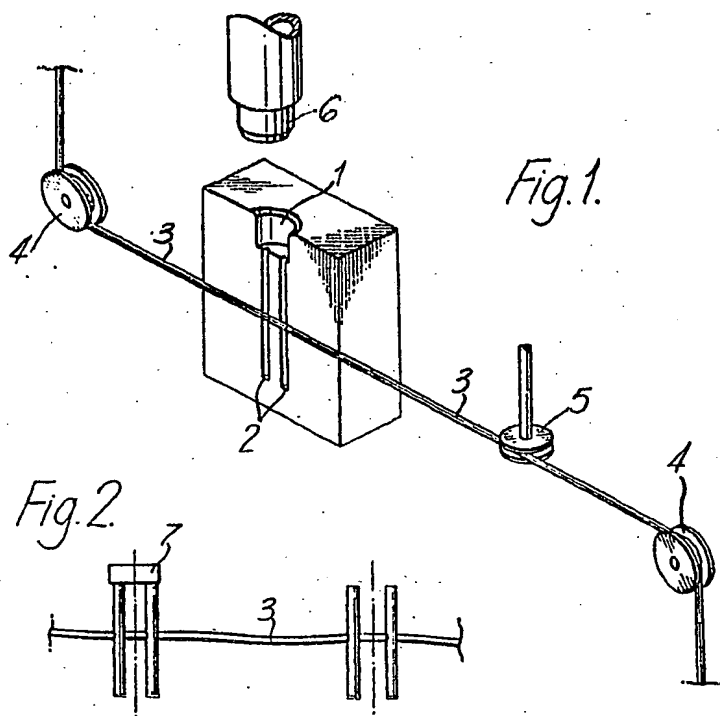
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COMPLETE SPECIFICATION

1 SHEET

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